Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1.   (Currently Amended)   ~~An analysis model data creating~~ A computer implemented method for creating an analysis model data using an arithmetic device, comprising:

reading out shape data defining a surface shape of an analysis target;

generating voxel data in which the read out shape data are embraced by a set of voxels that are rectangular parallelepipeds ~~parallellopipeds~~;

creating, for each voxel interfering with the read out shape data, an interference polygon inside the shape data using interference surfaces between the shape data and the interior of the voxel;

moving one of the vertexes of the interference polygon which has a predetermined property, to another vertex and creating a divided polygon having, as vertexes, said vertex that has not been moved and vertexes of the voxel inside said shape data; and

extracting an element of a predetermined shape on the basis of a relationship between a plurality of vertexes of the divided polygon.

2.   (Previously Presented)   The ~~analysis model data creating~~ computer implemented method according to claim 1, wherein said creating the divided

polygon includes moving vertexes of the interference polygon which are not located on any side of said voxel, to an on-side intersection that is an intersection between said interference surface and a side of said voxel.

3.   (Previously Presented) The ~~analysis model data creating~~ <u>computer implemented</u> method according to claim 1, wherein said element extracting includes defining, for element extraction, straight lines between the vertexes of said divided polygon and a surface containing some of the vertexes and parallel with any of said voxel surfaces.

4.   (Previously Presented) The ~~analysis model data creating~~ <u>computer implemented</u> method according to claim 1, wherein said element extracting comprises setting a bottom surface and a top surface corresponding to the bottom surface in said divided polygon,

allotting the vertexes of said divided polygon to the set top surface side and the set bottom surface side,

identifying correspondences between the vertexes on the top and bottom surface sides which have been allotted, and

extracting an element of a predetermined shape from the divided polygon using the top and bottom surface pairs identified as correspondences.

5.   (Currently Amended) ~~An analysis model data creating~~ A computer implemented method for creating an analysis model data using an arithmetic device, comprising:

reading out shape data defining a surface shape of an analysis target;

generating voxel data in which the read-out shape data are embraced by a set of voxels that are rectangular parallelepipeds ~~parallellopipeds~~; and

creating, for each voxel interfering with the shape data, an interference polygon inside the shape data using interference surfaces between the shape data and the interior of the voxel;

after said creating of the interference polygon moving vertexes of the interference polygon which are not located on any side of said voxel, to an on-side intersection that is an intersection between said interference surface and a side of said voxel, and creating a divided polygon having, as vertexes, the on-side intersection and vertexes of the voxel inside said shape data; and

extracting an element of a predetermined shape using a plurality of vertexes of the divided polygon and a voxel surface inside said shape data or a plane which is perpendicular to an internal voxel surface, or a partial area of the voxel surface, and which contains said vertexes.

6.   (Previously Presented) The ~~analysis model data creating~~ computer implemented method according to claim 5, wherein said element extracting comprises:

identifying one internal voxel surface of said divided polygon which has a predetermined property and setting the identified internal voxel surface as a bottom surface;

identifying a top surface corresponding to the set bottom surface;

allotting all the vertexes of said divided polygon to the top surface side and the bottom surface side; and

defining a plane perpendicular to said internal voxel surface on the basis of a relationship between the vertexes allotted to the bottom and top surfaces.

7.   (Previously Presented) The ~~analysis model data creating~~ computer implemented method according to claim 6, wherein said defining the plane comprises:

generating a vertex retrieving line perpendicular to said bottom surface and scanning the vertex retrieving line on a side of said divided polygon corresponding to said bottom surface thereof;

applying, if any vertex of said divided polygon is discovered while the vertex retrieving line is being scanned, a pair number to the vertex retrieving line at the position of the discovery;

generating, after completion of the scanning, pairs of vertexes on the bottom surface side and on the top surface side on the basis of a plurality of lines to which the pair numbers have been applied and of the presence of said vertexes on the bottom surface side and said vertexes on the top surface side for each of the lines;

setting, if an intersection between said line imparted with the pair number and having a vertex that has not been paired and a side of the divided polygon is inside said shape data, the intersection as a projective point; and

adding the projective point and a vertex corresponding to the projective point as said pair and defining a plane for element extraction on the basis of a relationship between the paired vertexes.

8.   (Previously Presented) The ~~analysis model data creating~~ computer implemented method according to claim 6, wherein said element extracting includes changing the bottom surface of divided polygons from which elements cannot be extracted and retrying the extraction process on the basis of the changed bottom surface.

9.   (Previously Presented) The ~~analysis model data creating~~ computer implemented method according to claim 5, wherein said creating of the divided polygon includes contracting the on-side intersection to said vertex of the voxel if a distance from said on-side intersection to said voxel vertex is shorter than a predetermined contraction distance.

10.   (Previously Presented) The ~~analysis model data creating~~ computer implemented method according to claim 9, further comprising, after said element extracting, increasing the contraction distance of divided polygons from which

elements cannot be extracted and retrying said process for generating a divided polygon, on the basis of the changed contraction distance.

11.   (Previously Presented) The ~~analysis model data creating~~ computer implemented method according to claim 5, wherein said element extracting includes executing, if an extracted element has a predetermined distorted shape, a process of not extracting the distorted shape as an element.

12.   (Previously Presented) The ~~analysis model data creating~~ computer implemented method according to claim 5, wherein said creating the interference polygon comprises:

extracting a voxel interfering with said shape data as a processed voxel;

determining a presence of any vertex from the shape data inside the processed voxel to be an intra-voxel intersection;

determining a presence of any intersection between a surface of said processed voxel and a side of said shape data to be an intra-surface intersection;

determining a presence of any intersection between a side of said processed voxel and a surface of said shape data to be an on-side intersection; and

applying an interior and exterior determining value for interior and exterior determination to each of said intra-voxel intersection, said intra-surface intersection, and said on-side intersection on the basis of front and back in formation contained in said shape data.

13.   (Currently Amended) A computer program product embodied on a computer-readable medium and comprising code that, when executed, causes a computer to perform recording medium on which an analysis model data creating program for creating analysis model data using an arithmetic device is recorded, the program comprising instructions executable by said arithmetic device, the program comprising:

a shape data readout instruction to read reading out shape data defining a surface shape of an analysis target;

a voxel data generating instruction to generate generating voxel data in which the shape data read out by said arithmetic means in response to the shape data readout instruction are embraced by a set of voxels that are rectangular parallelepipeds parallellopipeds;

an interference polygon creating instruction to create creating, for each voxel interfering with the shape data, an interference polygon inside the shape data using interference surfaces between the shape data and the interior of the voxel; a divided polygon creating instruction to move a vertex of the interference polygon which is not located on any side of said voxel, to an on-side intersection that is an intersection between said interference surface and a side of said voxel, and creating a divided polygon having, as vertexes, the on-side intersection and vertexes of the voxel inside said shape data; and

an element extracting instruction to extract extracting an element of a predetermined shape using a plurality of vertexes of the divided polygon created

in response to the divided polygon creating instruction and a voxel surface inside

said shape data or a plane which is perpendicular to an internal voxel surface, or

a partial area of the voxel surface, and which contains said vertexes.

14.   (Currently Amended) ~~An analysis model data creating~~ A computing

apparatus for creating analysis model data, comprising:

a shape data readout device that reads out shape data defining a surface

shape of an analysis target;

a voxel data generator that generates voxel data in which the shape data

read out by the shape data readout device are embraced by a set of voxels

which are rectangular parallelepiped ~~parallellopiped~~;

an analysis model data generator that generates analysis model data from

the voxel data generated by the voxel data generator; and

an analysis model data display that displays the analysis model data

generated by the analysis model data generator, wherein said analysis model

data generator comprises

an interference polygon creator that creates, for each voxel interfering with

the shape data read out by said shape data readout device, an interference

polygon inside the shape data using interference surfaces between the shape

data and the interior of the voxel,

a divided polygon creator that moves one of the vertexes of said

interference polygon which has a predetermined property, to another vertex, and

creates a divided polygon having, as vertexes, the on-side intersection and

vertexes of the voxel inside said shape data, and

an element extractor that extracts an element of a predetermined shape

on the basis of a relationship between a plurality of vertexes of the divided

polygon created by the divided polygon creating section.